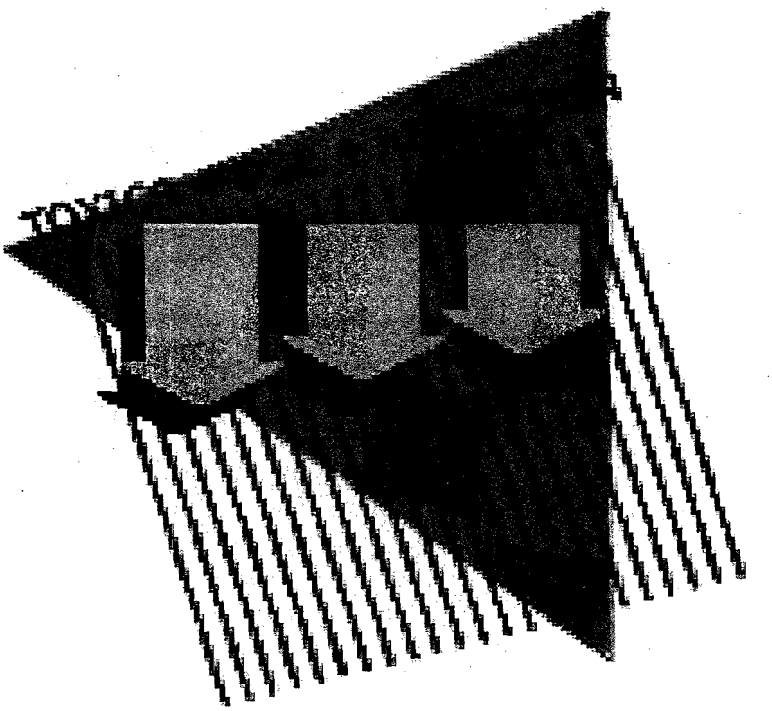
Massachusetts Administrative Council On Toxics Use Reduction

Fiscal Year 2000 Annual Report



May 2001

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Executive Office of Environmental Affairs
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May, 2001

Dear Stakeholders:

The Massachusetts Administrative Council on Toxics Use Reduction is again pleased to present its annual report to the Legislature in accordance with Section 4(d) of M.G.L. 21I, the Toxics Use Reduction Act.

As the Toxics Use Reduction Program enters its second decade, we are pleased to recognize Massachusetts industry for their continued success in reducing unnecessary toxics use and waste generation. As this report shows, TURA remains a cornerstone of the Commonwealth's pollution prevention efforts and its success was rewarded last year with the receipt of an "Innovations in American Government" award from Harvard University's Kennedy School of Government and the Ford Foundation. We are now actively pursuing ways to build on the valuable lessons offered by 10 years of success.

The Council offers its thanks to the members of Toxics Use Reduction Advisory Board for their dedication to the program. We also want to thank the many interested individuals and organizations that have worked with us over the last years to consider the program's future. Lastly, we want to acknowledge the work of all the staff at the Department of Environmental Protection, the Office of Technical Assistance, the Toxics Use Reduction Institute, and especially Barbara Kelley, who retired last year after ten years as the Director of the Office of Technical Assistance. During Barbara Kelly's tenure, OTA became the premier pollution prevention assistance agency in the country.

Thank you for your continued interest in the Toxics Use Reduction Act and its programs.

Very truly yours,

Bob Durand

Massachusetts Administrative Council
on
Toxics Use Reduction

Chair:
Bob Durand, Secretary of Environmental Affairs
Designee: Gina McCarthy

Member:
Elizabeth Ames, Director of Economic Development
Designee: Joseph Donovan

Member:
Angelo Buonopane, Director of the Department of Labor and Workforce Development
Designee: Paul Aboody, Division of Occupational Safety

Member:
Howard Koh, Commissioner of the Department of Public Health
Designee: Kevin Costas

Member:
Lauren Liss, Commissioner of the Department of Environmental Protection
Designee: Barbara Kwetz

Index

Administrative Council On Toxics Use Reduction
Fiscal Year 2000 Annual Report

This is the Fiscal Year FY 2000 Annual Report of the Administrative Council on Toxics Use Reduction. In this report, the Council summarizes the accomplishments of the Toxics Use Reduction (TUR) Program, and its five entities: the Council, the Advisory Board on Toxics Use Reduction, the Office of Technical Assistance (OTA), the Toxics Use Reduction Institute (TURI), and the Department of Environmental Protection's (DEP) TURA/Pollution Prevention Office. The report encompasses activities for the fiscal year 2000. Also included is a breakdown of TURA fees collected and expended for fiscal years 1999 and 2000 and an estimate for fiscal 2001.

Executive Summary

In 1989, the Massachusetts Legislature unanimously passed the Toxics Use Reduction Act. With that action, Massachusetts became the first state in the nation to legislate pollution prevention. The fundamental premise of the Act was that reducing the use of toxics can provide benefits in a number of ways:

- Toxics use reduction will reduce the related environmental and health risks associated with these substances,
- Toxics use reduction results in the reduction of toxic byproducts and emissions,
- The efficient use of toxics by industry can provide economic benefits, and
- Training, education and technical assistance have important roles in achieving environmental protection.

Since 1989, the TUR program has endeavored to meet the challenge created by the Act. This report describes that effort for the fiscal year 2000.

TURA Fiscal Year 2000 Accomplishments

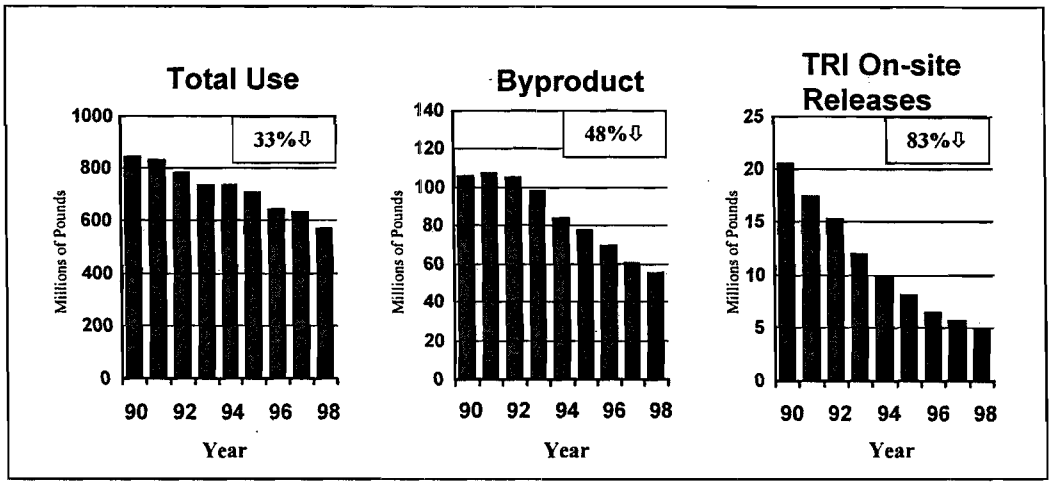
Fiscal Year 2000 represented the tenth year of operation for the TUR program. The program continued to demonstrate unmatched success in meeting its objectives as evidenced by the TURA Data Release. In addition, the TUR program received a major honor for government programs, winning the 1999 Innovations in American Government award. FY 2000 also represented a time of change for the TUR program, as the program began to develop ways to build on its success of the program and move forward on the next decade's challenges.

Calendar Year 1998 TURA Data Release:
Continued Success in Reducing the Use of Toxics in Massachusetts

During fiscal year 2000, the TUR program released the 1998 Toxic Use Reduction data. This report represented the ninth year of information collected by the program and continued to

indicate success in meeting the Act's goals. The three main measures of toxics use, byproduct generation, and on-site releases all continued to show significant reductions, as displayed below.

Core Group Toxics Use Reduction Progress From 1990 To 1998 – Production Adjusted



The Toxics Use Reduction Act set a ten-year goal of a 50% reduction in by-product. Next year's release will allow us to measure our success against that goal.

The TUR Program Wins Innovations in American Government Award

In October 1999, the Toxics Use Reduction Program was chosen as one of ten winners of the 1999 Innovations in American Government Award. The awards program, administered by the John F. Kennedy School of Government at Harvard University and the Ford Foundation, annually honors those government programs that have demonstrated outstanding examples of creative problem solving in the public sector. The TUR Program was chosen for its innovative, preventative approach to environmental protection and its demonstrated success in reducing the use of toxics in Massachusetts.

Environmental Stewardship And Toxics Use Reduction:
Building On Our Success

Despite the documented success of the program, there is a recognized need to refocus pollution prevention efforts and broaden the scope and direction of the program. In the eleven years since the passage of the toxics use reduction act, the concepts of pollution prevention and toxics use reduction have taken hold in Massachusetts and nationally and continue to grow. For the TUR program to maintain its innovation it must focus on new challenges and new opportunities. To that end, the executive office of environmental affairs commissioned a blue ribbon panel on pollution prevention in September of 1998 to examine the current toxics use reduction program as well as other national and international pollution prevention initiatives. The panel presented a final report in June of 1999, which contained a number of recommendations for program improvements. Key recommendations included in the report were to: more effectively focus the program on higher hazard toxic substances, expand the use of pollution prevention solutions in regulatory programs, and reward companies for performing "beyond compliance". Since the

report was finalized, program staff and interested parties have been examining ways to implement these recommendations, whether through administrative initiatives or through amendments to chapter 21I, the TURA statute.

Toxics Use Reduction Program Hosts National Conference

In March 2000, the Toxics Use Reduction Program was the host program and sponsor of the annual National Pollution Prevention Roundtable (NPPR) Spring Conference. The NPPR is the national organization of state pollution prevention programs. Over 500 people attended the three-day conference. The TUR program participated in all aspects of the conference, including organizing and participating in many of the educational sessions, providing administrative support for the event organizers and sponsoring a reception for attendees.

Fiscal Year 2000 TUR Program Agency Highlights

- In fiscal year 2000, OTA visited 245 facilities, including 70 local Departments of Public Works and 18 schools. 81 of these were first time visits to companies requesting assistance.
- DEP received a $100,000 EPA grant that was used to assist five small and medium sized companies to develop Environmental Management Systems (EMS).
- TURI supported four projects through its Cleaner Technology Demonstration Sites program, including its first grant for the development of an Environmental Management System and related training and mentoring.
- OTA assisted the Watertown Board of Health to develop the city's innovative Hazardous Materials by-law.
- 33 people attended TURI's Toxics Use Reduction Planner Training Course.
- DEP tested and certified 23 new Toxics Use Reduction Planners in January 2000.
- OTA expanded its Environmentally Preferable Products (EPP) work, targeting hospitals and health care facilities. They also launched the "Health Care EPP Network" newsletter.
- In fiscal year 2000, DEP's Bureau of Waste Prevention conducted approximately 780 multi-media inspections. These whole facility inspections simultaneously check for compliance with air, wastewater, hazardous waste and toxics use reduction rules and offer opportunities to identify TUR and P2 options.
- TURI continued to work with the Science Advisory Board on categorization of the TURA Chemical list and examined the issues related to the TUR program first petition to list a substance.
- OTA helped establish the Central Massachusetts Environmental Business Network (CMBEN). OTA also continued to support the Northeast Business Environmental Network (NBEN).
- DEP's Central regional office developed a pilot program to track P2 activity in its enforcement actions. The information gained from this project will allow DEP to track P2 implementation opportunities and improve P2 permitting efforts.
- TURI supported six projects through its Toxics Use Reduction Networking (TURN) grants program.
- OTA finalized a report on the pilot testing of three mercury removal technologies in area hospitals.

- The TURI Technology Transfer Center significantly expanded its holdings adding approximately 1,500 new books report, and journal articles.
- DEP, in coordination with the other TUR program agencies held four form S training seminars, which were attended by 200 people.
- During fiscal year 2000, the TUR Program agencies significantly expanded their presence on the World Wide Web through the following actions:

  - Led by TURI, the TURA agencies collaborated on creating and launching the TURA Data web site, hosted by TURI. All the TURA chemical data can now be found in a user friendly format at: www.turi.org/turadata.
  - OTA launched a revised web site in January 2000. The new site features access to electronic versions of OTA case studies and other publications, information on special programs at OTA, and links to important pollution prevention resources. The address is www.state.ma.us/ota.
  - DEP continued to update the resources available on their TURA web site, including a downloadable version of the Form S reporting package. DEP also posted an information sheet that highlights some steps businesses and individuals can take to reduce toxics use. These can be found under the TURA at www.state.ma.us/dep/bwp/dhm/tura/turapubs.htm
  - TURI also added two other new resources to their web site, including information to educate municipalities and community groups on toxics use reduction activities an on-line catalogue for the Institute's Technology Transfer Center. These can be found at www.turi.org/community and www.turi.org/greenlist

Administrative Council On Toxics Use Reduction

Fiscal Year 2000 Accomplishments

The Toxics Use Reduction Act (TURA) established the Administrative Council on Toxics Use Reduction as the coordinating body for the TUR program. In fiscal year 2000, the Council, chaired by Secretary Bob Durand, met four times to discuss program activities, comment on TURA agency actions and make determinations on the list of substances regulated under TURA. Highlights of the Council's fiscal year 2000 accomplishments are summarized below.

Program Receives National Award

The Council and program were honored in October with the Prestigious "Innovations In American Government" award. The awards program, jointly administered by the John F. Kennedy School of Government at Harvard University and the Ford Foundation, seeks to acknowledge those programs that have effectively pursued creative solutions in meeting their public service missions.

The Toxics Use Reduction Program was one of ten winners chosen from an initial pool of over 1600 applicants. A rigorous selection process winnowed the applicants down to 25 finalists. Program representatives made a final presentation to the selection committee in Washington, D.C. on October 15th, 1999 and were selected as winners the next day.

In their comments on the TUR program's success, the Innovations selection committee praised the program for its focus on pollution prevention rather than pollution control, its emphasis on working with the industries it covers and its documented success in reducing the use and release of toxic substances in Massachusetts. David Gergen, chairman of the Awards Selection Committee and Editor at Large of U.S. News and World Report, noted "(The TUR Program) turned regulation on its head by working with industry rather than against it."

The Award brings with it a $100,000 grant. The purpose of the grant is to promote the success of the TUR program and encourage replication of the program and its elements. To meet this purpose, the program is developing promotional and outreach materials and organizing a conference for local public health officials.

Targeting TUR Program Resources

As part of the Council's continued efforts to more effectively target the program's resources, the Council reviewed recommendations to delist several toxics substances. The following substances were delisted:

- Silver-Copper Alloys
- Zero Valance Copper and Silver
- Zinc Stearate

In addition the Council also formally accepted the final report of the Science Advisory Board entitled "Categorization of the Toxic Use Reduction List of Toxic and Hazardous Substances". This report, compiled over 18 months, represents the first comprehensive review of the TURA substances that examines each substance's relative hazard and places them in three categories – more hazardous, less hazardous and uncategorized. The Council praised the work done by the Science Advisory Board and acknowledged that the report will greatly influence the program's targeting of resources on critical issues in the future.

The Council also moved to keep the TURA list consistent with changes to the CERCLA and EPCRA list. As part of these deliberations, the council took up the issue of the new EPCRA 313 listing of Persistent Bioaccumulative Toxins (PBTs). The federal Environmental Protection Agency established the PBT list and required significantly lower reporting thresholds than those required for other EPCRA substances. The TURA statute requires that the program adopt these new thresholds for TURA reporting as well. The Council has discussed the potential programmatic impact of these new thresholds and directed DEP to keep them informed of their work on the issue. In addition, the Council has encouraged the other TURA agencies, OTA and TURI to work with DEP to ensure a balanced approach to educating filers and administering the data collection.

Lastly the Council has begun deliberations on the first petition to list a new TURA substance: silica. The petition is expected to be more thoroughly review in the next fiscal year.

The Toxics Use Reduction Advisory Board

Section 5 of TURA created the Toxics Use Reduction Advisory Board, a diverse group of 15 stakeholders representing business, health and environmental interests as well as the Attorneys General's Office and the Massachusetts Water Resources. The main responsibilities of the group are to advise the Administrative Council on all matters related to toxics use reduction, to provide a forum for discussion on toxics use reduction and to administer the Governor's Awards for Toxics Use Reduction.

During FY 2000, the Advisory Board provided significant input to the development of new legislation for the TUR Program. Members of the Advisory Board had been involved in the Blue Ribbon Panel on Pollution Prevention, which developed the report on which the proposed new legislation was based. In addition, the board met on two occasions to review drafts of the legislation and provide comments and direction to the program staff charged with drafting the bill.

Also during FY 2000, members of the Advisory Board participated on the selection committee for the annual Governor's Awards for Outstanding Achievement in Toxics Use Reduction. The awards honor companies, institutions and public sector agencies that have demonstrated a commitment to toxics use reduction through their actions, projects or programs.

The awards event was held on September 20, 1999 to coincide with National Pollution Prevention Week. Secretary Bob Durand honored the five winners and presented them with plaques and flags to commemorate their efforts. The five winners were:

- Alternatives for Community and Environment, Roxbury
- Foilmark Manufacturing Corporation, Newburyport
- Nock Middle School, Newburyport
- Polaroid Corporation, Waltham
- Riverdale Mills Corporation, Northbridge

The Governor's awards event also gave the TUR Advisory Board and the TUR Program the opportunity to honor winners and encourage of DEP's Annual National Pollution Prevention Week Poster contest for schools.

Office of Technical Assistance for Toxics Use Reduction (OTA)

The Office of Technical Assistance for Toxics Use Reduction (OTA) was established in 1989 by the Massachusetts Toxics Use Reduction Act (TURA). Since its inception, OTA has worked with hundreds of businesses, municipalities, and others to help them reduce or eliminate their use of toxics and generation of hazardous byproducts. OTA promotes environmental compliance through toxics use reduction (TUR) and other pollution prevention (P2) techniques in order to help:

- Protect public health and the environment
- Improve efficiency and reduce waste, which in turn may cut costs and strengthen the economy
- Improve environmental compliance within the regulated community

Fiscal Year 2000 Accomplishments

Fiscal year 2000 saw OTA enter its second decade of providing pollution prevention assistance to Massachusetts's toxics users. In November 1999, founding director Barbara Kelley chose to retire from her position at the helm of the office. Paul Richard, formerly of OTA and most recently the director of the Massachusetts Strategic Envirotechnology Partnership (STEP), was appointed as the new director. With new leadership in place, OTA initiated a comprehensive self-assessment effort designed to maintain and expand the office's capabilities and ensure that the pollution prevention assistance needs of Massachusetts's toxics users are being met.

OTA continued to provide one-on-one, comprehensive on-site technical assistance to Massachusetts's toxics users, conducting 269 site visits to 157 industrial facilities over the course of the fiscal year. OTA helped sponsor or present at approximately 30 workshops and conferences. Technical staff also made presentations and/or led workgroups at several national conferences.

New municipal services staff allowed the office's work with facilities such as departments of public works (DPWs) and schools to increase dramatically during FY 2000. OTA also began developing several routes by which technical staff may help encourage and facilitate research into new pollution prevention technologies and practices.

This report provides summaries of each of the major activities undertaken by OTA during FY 2000, organized into the following categories:

- Technical Assistance
- Special Projects, Programs and Outreach
- Technology Transfer and Support
- Toxics Use Reduction Act (TURA) Program and Other Policy Support

Technical Assistance

As mandated by the Toxics Use Reduction Act, OTA's technical staff of engineers, chemists and other scientists provides on-site technical assistance to companies and institutions that use toxic materials. Highlights of the site visits conducted during FY 2000 include:

- Total site visits: 269 site visits to 157 facilities

Since OTA's inception, technical staff have conducted over 2000 site visits.

- First-time visits to companies requesting assistance: 81

Over 50% of OTA's site visits in FY 2000 were to new clients. Of the 81 first-time visits conducted by OTA technical staff, over 60% were the result of a referral from the Department of Environmental Protection (DEP) via a Notice of Non-compliance or other referral.

- Municipal, institutional visits: 70 departments of public works (DPWs) and 18 school systems

Special Projects, Programs and Outreach

OTA complemented its on-site and over-the-phone technical assistance with a number of special activities designed to educate and inform toxics users on pollution prevention practices, support actions of other assistance providers and agencies, and/or increase awareness of OTA's products and services.

- OTA launched a revised website in January 2000 to improve information sharing and access for clients and the general public. The new website currently provides comprehensive information on each of OTA's products and services, access to electronic versions of case studies and many other OTA publications, and links to a range of other government and pollution prevention resources. Additional sections to be added include process-specific P2 and compliance assistance modules and guidance for schools and DPWs.

- OTA staff co-produced, presented at and/or hosted over 30 pollution prevention/technical assistance-related events during FY 2000.

- OTA municipal support staff bolstered the office's regular industrial pollution prevention assistance by conducting 70 visits to departments of public works (DPWs) in FY 2000. In addition to comprehensive site evaluations and technical assistance, applications were received from many of the facilities for an OTA administered grant program designed to encourage the adoption of environmentally preferable technologies and products. Implementation of this grant program will commence in FY 2001.

- OTA staff worked closely with the Watertown Board of Health to develop language for the city's innovative Hazardous Materials regulation, and accompanied Board of Health staff on site visits to a number of their public facilities.

- Technical staff conducted outreach and education presentations for state and local officials, including fire departments, boards of health, DPWs and POTWs, as well as municipal and regional Chambers of Commerce. These workshops are intended to help promote P2 through education of local enforcement authorities and business leaders.

- OTA staff conducted on-site visits for 18 school systems throughout the state. The technical assistance that was provided included chemical management, hazardous waste disposal, employee training, and a variety of other prevalent environmental, health and safety issues. OTA staff also helped schools prepare to comply with the Massachusetts Children and Families Protection Act, a pesticide regulation enacted in May 2000.

- The guidance materials developed by OTA staff to help schools improve EHS performance will form the basis of a comprehensive EOEA Schools Initiative.

- OTA built upon its assistance to Massachusetts's schools and colleges by implementing the APPLE (Academic Pollution Prevention – Learning from Experience) project, an assistance, education, and financial aid package designed to help qualified participants identify and address various chemical management concerns in schools. Funded by a grant from U.S. EPA New England, the APPLE project pairs schools with local partners (municipal agencies, non-profit organizations) in an effort to increase awareness and understanding of the environmental and health concerns posed by chemical use, storage and disposal. APPLE also provides participants with the information necessary to address existing concerns and prevent similar problems from occurring in the future. Six school-partner teams were selected to participate. Each team received $1500 to help defray the cost of conducting the necessary assessment and planning. One-day trainings were held for the teams in Wilmington and Springfield, for which a comprehensive guidance on chemical and environmental management was developed.

- OTA continued its work identifying, evaluating and promoting environmentally preferable purchasing (EPP) practices in FY 2000. The office maintained its collaboration with the Massachusetts Operational Services Division (OSD), providing technical support on a range of products and issues. OTA EPP staff was active in conducting outreach and presentations on the Commonwealth's groundbreaking EPP programs and best purchasing practices, both at the state and national level.

- OTA expanded its EPP work to aid hospitals and health-care facilities. OTA had previously and coordinated the Massachusetts Health Care EPP Network, a group of hospitals interested in EPP that meets every other month to exchange resources. This group is now self-sustaining with OTA participation. Accompanying this effort is the "Health Care EPP Network Newsletter," a bi-monthly compilation of EPP information of interest to hospitals and health care facilities. The newsletter has over 300 subscribers and is also available over OTA's website. OTA staff co-chaired the Hospitals for a Healthy Environment EPP Workgroup (implementing a Memorandum of Understanding between the U.S. EPA and the American Hospital Association) and shared resources from this initiative with Massachusetts's hospitals. OTA also developed and maintains a web-based database of specifications for environmentally preferable products in health care.

- OTA staff participated extensively in the Northeast Mercury Workgroup, which produced draft model legislation on mercury elimination for consideration by the New England Governors and Eastern Canadian Premiers. The draft is being utilized by many of the states in crafting existing or pending legislative proposals. Related to this effort, OTA staff participated in the EOEA Mercury Reduction Workgroup, helping provide technical support for the state's effort to develop a comprehensive mercury reduction policy.

- OTA continued to serve as a facilitator for the Department of Environmental Management (DEM) Forest and Parks Division environmental management system (EMS) pilot program. This included providing input and support for the training of "Recycle Rangers" (who will be administering the recycling program at the DEM parks and camping grounds) and conducting a series of EMS and hazardous waste management trainings for DEM staff.

- As part of their work on EMS, OTA staff participated in a number of American Society for Quality (ASQ) activities, chairing the national P2 and Waste Minimization Committee of the Energy & Environment Division, the ASQ (Boston Section) P2 Committee and the bi-monthly ASQ (Boston Section) EMS Roundtable (until recently titled the "ISO 14000" Rountable).

- OTA sponsored three regional conferences on pollution prevention and acid /base reuse and regeneration. Staff presented materials on DEP's Class A recycling permits.

- Having played a central role in establishing the influential Northeast Business Environmental Network (NBEN) several years ago, OTA continued providing assistance to the organization in FY 2000. In particular, OTA helped members implement a new membership database to aid in effectively communicating with and building new membership. OTA also helped NBEN present a final EMS report to one of its members.

- OTA continued its association with the Central Massachusetts Business Environmental Network (CMBEN), CMBEN, working with members to develop a comprehensive state and federal regulatory compliance matrix, providing training on EMS, emergency response planning and other pollution prevention topics, and attending monthly meetings to provide necessary input and support.

Technology Transfer And Support

In FY 2000, OTA's technical staff maintained or, in some cases, expanded their role in helping to identify, evaluate and promote a range of innovative pollution prevention technologies and processes.

- OTA provided ground-level support for the federal Department of Energy's (DOE) National Industrial Competitiveness through Energy, Environment and Economics ($NICE^3$) program. The office's ongoing association with the program in FY 2000 included administering the $400,000 grant awarded to ThermoTrex, marketing the $NICE^3$ program to Massachusetts industries, identifying candidate companies, and assisting in the preparation of the two proposals that were submitted in response to the FY 1999 $NICE^3$ solicitation.

- OTA's ongoing involvement with the Massachusetts Strategic Envirotechnology Partnership (STEP) included the following activities:
  - Providing STEP Services to Companies
    OTA staff provided technical review and assessment, including the development of experimental protocols for the pilot demonstrations receiving assistance from the program. OTA also participated in several Commercialization Workshops provided to companies receiving STEP assistance.
  - Research Related Activities
    OTA provided three research topics to STEP's National Envirotechnology for Waste Prevention Institute (NETI) at U-Mass Amherst, and OTA staff served as technical reviewers for all ten of the FY 2001 proposals submitted. Two of the projects based on OTA topics that were funded in FY 2000 were selected to receive additional funding in FY 2001. In addition, OTA staff participated in the review of proposals submitted in response to the FY 2001 solicitations for NETI, the Advanced Technology and Manufacturing Center (ATMC) at U-Mass Dartmouth and the University Research for Sustainable Technology (URST) program – a joint TURI/STEP effort.
  - Evaluation of Mercury Removal Technologies
    OTA staff played a major role in coordinating the pilot testing of three promising mercury removal technologies at Newton-Wellesley Hospital, Brigham & Women's Hospital, and the USDA Human Nutrition Research Center on Aging at Tufts University. In FY 2000, the final report for the project was completed.

- OTA staff continued to participate in TURI's Cleaner Technology Demonstration Sites and Matching Grants program, serving as members of the proposal review committee and providing assistance in reviewing project reports.

- OTA staff helped Lab Medical Engineering & Manufacturing of North Billerica to secure additional funding and necessary technical and testing support to aid their efforts in developing a plasma gas alternative to the traditional use of nitric acid in the stainless steel passivation process. OTA's efforts in FY '99 were part of an ongoing partnership with Lab Medical to make this technology, which was originally formulated by OTA staff, available to companies in Massachusetts.

- OTA staff served on the Research and Technology Transfer workgroup of the National Pollution Prevention Roundtable (NPPR), in addition to presenting at several other national conferences on the Commonwealth's pollution prevention technology efforts. OTA also organized and helped present at the 2000 Toxics Use Reduction Planners (TURP) conference, including sessions on the office's RUNVOC program and new non-chemical water treatment technologies.

- OTA staff continued to serve on the Stakeholder group for U.S. EPA's Environmental Technology Verification (ETV) pilot for Coatings and Coating Equipment. This program will provide unbiased, third party documentation to verify claims of reduced volatile organic compound (VOC) and hazardous air pollutants (HAP) emissions made by manufacturers of coatings and coating application equipment.

TURA Program and Other Policy Support

As an agency inherently familiar with technical and compliance issues facing toxics users, OTA was often involved with efforts to develop and implement Massachusetts toxics use reduction and pollution prevention policies and programs in FY 2000.

- OTA was an active partner in a coordinated outreach by U.S. EPA to facilities subject to the Halogenated Solvent Cleaning standard (40 CFR 63.00 Subpart T). This outreach included workshops and a targeted mailing to regulated facilities in Massachusetts. Staff presented the OTA Degrease software to workshop participants.

- OTA provided a comprehensive range of technical services to various watershed teams across the state in support of Massachusetts Watershed Initiative and pollution prevention goals. This assistance included identifying potential sources of pollution within specific watersheds, reviewing waste-site clean-up files and profiling clean-up efforts, explaining environmental requirements, organizing water conservation workshops for industrial facilities, identifying pollution prevention opportunities that could be promoted within specific watersheds, and providing technical assistance to referred facilities. OTA staff attended and presented at several watershed meetings and summits throughout the state.

- OTA continued to send a representative to the regular meetings of the TURA Science Advisory Board and provide technical information upon request.

- Staff developed a regulatory matrix, similar to that produced in association with CMBEN (see "Special Projects, Programs and Outreach"), for the U.S. EPA Strategic Goals Program for Metal Finishers project.

Office of Technical Assistance for Toxics Use Reduction – FY 2000

Paul Richard	Director
Bill McGowan	Assistant Director Technical Assistance
Rick Reibstein	Assistant Director Policy Outreach and Special Projects
Audrey Tyler-Casey	Assistant Director of Administration
Christopher MacIsaac	Administrative Assistant
Debra Fogarty	Administrative Assistant
Lara Sutherland	Environmental Analyst
Hilary Eustace	Special Projects Manager
Stephen George	Environmental Analyst
Susan Lanza	Events Coordinator
Marie Gunning	Financial Analyst
Phil Milmoe	Systems Analyst
John Raschko	Team Leader
John Flynn	Physical Chemist
Ken Soltys	Team Leader - Southeast Region
Augustus Ogunbameru	Environmental Analyst
Lisa Grogan	Environmental Engineer
Rich Bizzozero	Team Leader - Northeast Region
James Cain	Chemical Engineer
Azin Kavian	Physicist
Bill Griffin	Team Leader - Central Region
Marina Gayl	Environmental Engineer
Susan Leite	Environmental Analyst
Scott Fortier	Team Leader - Metro Region
Joe Paluzzi	Industrial Engineer
Hazrat Noorzad	Chemist
Alan Buckley	Team Leader - Western Region
Jan Whitfield	Environmental Engineer

The Toxics Use Reduction Institute (TURI)

The Toxics Use Reduction Institute was established at the University of Massachusetts Lowell by the Toxics Use Reduction Act. The mission of the institute is to promote the reduction in the use of toxic chemicals or the generation of toxic by-products by Massachusetts industries. It accomplishes this mission through programs in research, education, and information dissemination.

The Institute is administered by a Director, Deputy Director, and three Associate Directors. The Director and the Deputy Director are faculty members at the university. In addition, the Institute employs 15 professional staff and five clerical staff. Each semester and over the summer the Institute employs several student interns. Additionally, the Institute contracts with professionals where needed to assist in training, research, and technical programs.

In order to carry out its mission, the Institute is organized into five staff clusters, i.e., Research, Education and Training, Technical Support, Surface Cleaning Laboratory, and Administration. The program of the Institute is developed from ten mandates set out in the authorizing legislation. The program is reviewed annually during a retreat held in January at which time a Strategic Plan for the next fiscal year is drafted. Program review and assessment occur continuously throughout the year by means of weekly staff meetings. In addition, a special Policy and Planning Committee made up of representatives of each cluster meets weekly to address longer-term policy and planning issues.

Fiscal year 2000 was the ninth year that the Toxics Use Reduction Institute worked to improve public health and the environment in the Commonwealth. The following summaries of our work illustrate the significant progress made during the year.

Research

TURI Sponsors Seven Sustainable Technologies Projects

The University Research in Sustainable Technologies program is a joint project of TURI and the Center for Environmentally Appropriate Materials (CEAM) at UMass Lowell, with support from the Commonwealth's Strategic Envirotechnology Partnership (STEP). The program taps the research capabilities of the University of Massachusetts to advance the investigation, development and evaluation of sustainable technologies that are environmentally, occupationally and economically sound. The program provides research funding to faculty from all UMass campuses, annually, on a competitive basis and encourages faculty/industry partnerships and cross-campus collaboration. Industry partners provide guidance, propose applications for new technologies, and, in some cases, evaluate and/or adopt processes and technologies resulting from research.

For FY2000, the program awarded grants totaling $140,000 for research projects at University of Massachusetts campuses at Lowell and Boston. The following is a list of the seven FY2000 projects:

Diffusion Dialysis and Acid Recovery in Metal Working and Finishing
Prof. Francis J. Bonner and Prof. Alfred A. Donatelli, UMass Lowell, Department of Chemical Engineering
Industry Partners: Zero Discharge, Inc., Chicopee, and PureCycle Environmental Technologies, Inc., Palmer.

Solar Fuel Cell System
Prof. John Duffy, UMass Lowell, Department of Mechanical Engineering, Solar Engineering Program
Industry Partner: Electrochem, Inc., Woburn, MA

Optical Information Processing with Environmentally Friendly Organic Materials
Prof. D.V.G.L.N. Rao, UMass Boston, Department of Physics
Industry Partners: Molecular Technologies, Inc., Westford, MA, and US Army Research Labs, Natick, MA
University Partner: Prof. John Warner, UMass Boston

Developing and Analyzing Lead-Free Soldering Processes for Printed Wiring Boards
Prof. Sammy G. Shina, UMass Lowell, Department of Mechanical Engineering
Industry Partners: HADco Corporation, Haverhill; Solectron Corporation, Westborough; BTU International, Billerica; Texas Instruments, Attleboro; and Multicore Solders, Richardson, Texas.

Environmentally Benign Control of Polymer Solubility: Photoresist Materials Using DNA Mimics
Prof. John C. Warner, UMass Boston, Department of Chemistry
Industry Partner: Polaroid Corporation, Cambridge
University Partner: UMass Amherst

Integration of Pollution Prevention and Occupational Health and Safety
Prof. Rafael Moure-Eraso, UMass Lowell, Department of Work Environment
Industry Partners: ECC Corporation, Holden; Hadco Corporation, Haverhill; and Sanmina, Wilmington.

Synthesis of Conjugated Polymers and Molecules Using Sugar Reagents and Solventless Reactions
Prof. Daniel J. Sandman, UMass Lowell, Department of Chemistry
Industry Partner: Polaroid Corporation, Cambridge

TURI Works with the SAB on Categorization Project

In FY99 the Institute's Research Cluster provided technical and administrative support to the Toxics Use Reduction Science Advisory Board on a project to categorize the 258 chemicals ever reported under the Toxics Use Reduction Act. The resulting lists of more hazardous, less hazardous and uncategorized chemicals will be used by the Toxics Use Reduction Program to aid in setting priorities and will serve as guidance for companies making chemical substitution

decisions. The lists will be included in the annual TURA reporting package, used by the Office of Technical Assistance and included in the training of Toxics Use Reduction Planners.

In order to aid in targeting technical assistance and research efforts for the chemicals on the more hazardous list, the Institute is supporting a project to evaluate use and byproduct production trends for each chemical, summarize its hazards, determine industries where the chemicals are commonly used, compile descriptions of common uses in Massachusetts, and for select chemicals and uses determine where cost effective alternatives do not exist. This information will be used to guide the research program and to inform companies, workers and the public.

TURI Funds Four Cleaner Technology Demonstration Sites Projects

With the objective of making research immediately applicable to Massachusetts businesses, the Institute has developed research partnerships with more than 33 firms through its industry grant programs. For FY 2000, a total of $60,000 was awarded to support the following four projects.

Riverdale Mills, Northbridge, manufactures galvanized and plastic coated ferrous wire mesh products. The company has been awarded a grant of $13,000 for the development and installation of an innovative wire annealing process. By modification of the atmosphere and temperature profile of the annealing process, Riverdale will be able to eliminate the use of tens of thousands of pounds per year of hydrochloric acid and ammonium chloride. Additionally, the use of lead as a heat sink will be eliminated, thus eliminating the byproduct of lead and lead chloride from this operation as well. There is an associated energy savings of over one million-kilowatt hours per year. These savings, along with manufacturing efficiency improvements, will result in substantial financial savings for Riverdale Mills each year.

Barry Controls, Brighton, manufactures shock and vibration control technologies. In the manufacturing process, adhesives must be applied to metal substrates to provide a quality rubber-to-metal bond. Barry Controls has been awarded $15,000 for their investigation of a spray-tumbling application process to replace the current spray application process. The use of the spray-tumble applicator will reduce the use of Volatile Organic Compounds (VOC) by 30%, with an associated savings of $280,000.

Circuit Fabrication Co., Waltham, has been awarded $10,000 towards development of a novel method to plate the insides of printed wiring board through-holes with electroless copper. This process replaces the traditional method of plating the entire board. Substantial reductions in process chemical use, waste treatment resources, and cycle time will be achieved through this new system.

Photofabrication Engineering, Inc. (PEI), Milton, an ISO 9000 registered company that manufactures chemically machined and photo-etched precision and decorative metal parts, has been awarded $22,000. This grant covers the development and implementation of an ISO14001 compliant Environmental Management System (EMS). In addition, PEI is hosting and training a work group of 10 Massachusetts manufacturing companies in the systems, methods, and real-world lessons of EMS development. These systems are formal programs that provide companies with a competitive advantage by instituting continual improvement systems. This continual

improvement includes areas such as environmental compliance, pollution prevention and community relations.

- The Institute continued to evaluate progress in TUR by analyzing the toxic chemical use, byproducts and emission data reported under TURA

- A detailed analysis of the TURA data chemical category was performed and a report published. The study evaluated progress in eight categories of interest, including carcinogens, PBTs, and solvents

Education And Training

- The Institute presented one session of the Toxics Use Reduction Planner Training Course to 33 participants.

- The Institute offered the Industry Specific Day in the fall of 1999 to 87 people. This is the last day of the TUR Planner's class and also serves as a continuing education opportunity for certified TUR Planners

- In the winter of 1999, the Institute held a Refresher Course to help TUR Planners prepare for the certification exam. Twenty-three planners attended.

- The Institute offered a two-day continuing education conference in April 2000 entitled "TUR in Massachusetts: The Next Generation" The conference was attended by 285 people. Attendees were awarded 3792 TUR Planner continuing education credits and 105 non-planner credits to be used for other certifications such as wastewater treatment certification.

- The Institute continued to work in K - 12 education around pollution prevention by assisting the Springfield Vocational School in creating a TUR Planning System.

- The Institute participated in the Healthy Communities Institute to provide information on TUR to 8 Massachusetts communities.

- The Institute presented at the Small Business Education and Training Workshop at the National Pollution Prevention Roundtable annual meeting. The Institute also sponsored a Poster Session: Promoting Toxics Use Reduction in the Community

- The Institute continued its partnership with AHEC/Healthy Communities and the Massachusetts Department of Public Health to promote the relationship between Public Health and TUR in Massachusetts.

- The Institute provided TUR Data training for communities. The workshop was co-sponsored by the Department of Public Health and Healthy Communities Massachusetts.

Technical Support

The Technology Transfer Center

Established in 1992, the Technology Transfer Center (TTC) acquires, organizes and disseminates information on new technologies and materials that promote toxics use reduction. In FY00 the TTC:

- Added approximately 1,500 new books, reports, and journal articles to its holdings
- Maintained its number of journal and newsletter subscriptions at approximately 200
- Responded to over 400 requests for information from outside clients, including selected full document delivery and;

In addition, the TTC was given The Working Group's Community Right To Know collection, consisting of approximately 1,000 documents describing how communities have used right-to-know information. The TTC also merged the Department of Work Environment Library into its holdings, eliminating duplication and bringing them under the supervision of our professional librarian. This expanded the TTC holdings by approximately 30 journals (most of these have at least ten years of issues), 400 books, and hundreds of government reports and publications.

The TTC Electronic Database Continues to Expand

The TURI Database has 8100 bibliographic records of emerging technology and relevant multi-sectoral knowledge of methods and materials. Materials catalogued and entered in the database are selected by engineers and researchers knowledgeable about cleaner production in sectors relevant to New England firms. This database is now publicly available online at www.turi.org/greenlist.

Institute Publications

In order to support research into substitutes for the chemicals on the SAB's More Hazardous Chemicals List, the Research Cluster prepared and the TTC published Chemical Fact Sheets for 6 of these chemicals. The remaining Fact Sheets are scheduled for publication in FY 2001. All Institute publications are popular informational products, generating hundreds of requests for copies each year from Massachusetts and national and international clients. Almost 1300 copies of TURI publications were distributed during the fiscal year.

The Institute's Technical Support Cluster Enhances TURI's Internet Presence

Websites that the Technical Support Cluster created and has responsibility for maintaining are listed below. These sites were actively maintained, monitored, and updated during FY 2000.

- www.turi.org
- www.P2Gems.org

Three new web resources were added by TURI programs to the TURI site during FY 2000:

www.turi.org/community

Information on how community groups and municipalities have raised awareness and worked to reduce toxics in our households, schools, lawns, municipal buildings and grounds, DPW's, wastewater treatment plants, and local businesses.

www.turi.org/turadata

Access in a user-friendly format to all of the TURA chemical data reported by Massachusetts companies under the TUR Act of 1989.

www.turi.org/greenlist

The online catalog of the Institute's Technology Transfer Center.

All were designed through a collaborative process with industry and communities through a series of meetings that took place in this fiscal year.

- The Institute continues to participate in and support the following knowledge networks:
  - Northeast Pollution Prevention Roundtable
  - Northeast Business Environment Network
  - TUR Planners' Association
  - Lowell Center for Sustainable Production
  - Center for Environmentally Appropriate Materials

Community Programs

The Toxics Use Reduction Networking (TURN) Grants Program was established by the Massachusetts Toxics Use Reduction Institute in 1995 to encourage involvement by community organizations and municipalities in the state's Toxics Use Reduction Program.

Two types of grants are awarded under the TURN program: Community Awareness projects designed to raise awareness and understanding of TUR; and Municipal Integration projects that foster incorporation of toxics use reduction/pollution prevention strategies into local municipal activities and functions.

2000 Community Awareness Grants

Alternatives for Community and Environment (ACE), Roxbury, Dorchester, Mattapan
A Model for Healthy Hair: New Partnerships for Reducing Toxics Use in Community Hair Salons and Barbershops in Massachusetts Environmental Justice Communities
Project Manager: Jodi Sugerman-Brozan; Massachusetts Department of Public Health, Roxbury/Dorchester/Jamaica Plain/Mattapan Hair Salons, Boston University School of Public Health

Building on the success of the first year of funding of the Healthy Hair Campaign, ACE developed materials for other communities to learn about toxics and hair care. ACE developed a step-by-step Healthy Hair Tool Kit that will serve as a guide for low-income communities of color across the state and nation on how to develop a healthy hair campaign. Using the growing network of interested parties, there will be wide distribution of materials, web information, and outreach to beauty schools and salons.
End Products: National campaign, Healthy Hair Tool Kit, Website, Healthy Hair Poster.

Metro South Chamber of Commerce, Brockton
The Metro South Toxic Use Reduction Awareness Campaign
Project Manager: Roy Nascimento
Partners: Metro South Area Businesses.

As the first major Chamber of Commerce TUR Campaign, Metro-South conducted broad outreach and education in TUR through newsletter and newspaper articles, Chamber breakfast meetings, and radio announcements. The Chamber developed a TUR/Pollution Prevention Resource Library at their Brockton office, formed a steering committee of business owners to identify specific TUR needs, and, in partnership with the Office of Technical Assistance, presented two workshops for small businesses and manufacturers.
End Products: Flyers, Newsletter articles, Breakfast presentations, TUR workshop for Auto Body/Repair Shops, Metal Shops and Manufacturers, Pollution Prevention Library.

Marblehead Pesticide Awareness Committee (MPAC), Marblehead
A Living Lawn...A Lawn for Living, Phase Two:
Project Manager: Patricia Beckett;
Partners: Marblehead Recreation, Parks & Forestry Department;
Marblehead Environmental Coalition;
Marblehead Board of Health.

This is a continuation of the 1999 TURN project - the Organic Lawn and Garden Demonstration Site. Phase II saw the completion of the site as an educational resource center on pesticides and organic turf management. A series of educational seminars for professional landscapers and the public were offered and a website and video are under development. Town officials are actively involved and MPAC is helping the town write a Pesticide Policy that will reduce the use of pesticides on town-owned land. MPAC has received numerous calls from surrounding communities and communities across the state requesting information on organic lawn care and the development of a demonstration site. MPAC has received the 2000 Governor's Award for Outstanding Achievement in Toxics Use Reduction.
End Products: Organic Lawn and Garden Demonstration Site, Educational series on organic lawn horticulture, landscaping techniques, and products, Pesticide Information Center, website, public outreach campaign, educational video.

Lynn Hispanic-American Community Association, Inc. (HACA), Lynn
Building Bridges to Community Awareness Toxic Waste Reduction
Project Manager: Manny Alcantara
Partners: Lynn Chamber of Commerce,
Lynn Latino Business Association

HACA and its partners developed a TUR workshop in Spanish for the Latino population working in auto paint shops and chemical factories. The workshop addressed regulations, pollutants, exposure, risks, good housekeeping practices and how to reduce pollution. They also translated relevant pollution prevention materials into Spanish.
End Products: Workshop for Latino Auto Body Shops and Spanish TUR materials.

WasteCap of Massachusetts, Boston
Environmentally Preferable Cleaning Project
Project Manager: Craig Olsen;
Partners: Building Owners and Managers Association (BOMA),
Massachusetts Operational Services Division,
Office of Technical Assistance,
Department of Environmental Protection.

WasteCap, a non-profit, voluntary statewide organization focused on minimizing and recycling waste, surveyed members of the Building Owners and Managers Association on the current cleaning practices in downtown Boston office buildings. The survey identified how the cleaning companies choose cleaning products and asked whether they would consider Environmentally Preferable Products (EPPs). WasteCap, working with DEP, OTA and TURI, promoted the use of less toxic cleaning products to major cleaning contractors through a one month pilot testing of EPPs and satisfaction survey. Through these efforts, two cleaning companies have switched to environmentally preferable cleaners. Finally, a case study of the results will be disseminated to promote EPPs.
End Products: Case study of Purchasing Habits of Building Managers, Pilot testing of environmentally preferable cleaning products, Recommendations for alternative cleaners.

2000 Municipal Integration Grants

City of Everett Mayor's Office of Community Development, Everett
Alternatives to Solvent Based Degreasers: Systems and Fluids
Project Manager: Todd Fiorentino
Partners: Mayor's Office of Community and Economic Development
Everett Department of Public Works
Everett Board of Health.

In an effort to develop a comprehensive toxics use reduction project, the City of Everett identified solvent-based degreasers and the impact they may be having on workers as a major concern. The Everett City Yard has been set up as a Demonstration Site where mechanics from neighborhood repair shops can view alternative degreasing systems. The aim is to support five

repair shops in Everett in changing over to a less toxic cleaning system, as the municipal garage is doing. The final results are pending. In addition, the cost effectiveness and benefits will be synthesized in a final report to further promote the alternatives across the state.
End Product: Demonstration DPW, Five Demonstration Businesses, Cost Benefit Analysis, and Brochure.

Surface Cleaning Laboratory

TURI Continues to Provide Testing and Evaluation Services in its Surface Cleaning Laboratory

In fiscal year 2000, the laboratory performed 112 tests for 41 companies. These businesses represented a variety of product and service activities, including: chemical (6), consulting (5), electronics (2), general manufacturing (7), metal working/fabrication (10), optical (1), printing (1) and government agencies/universities (7).

The Surface Cleaning Laboratory Enhances its Capabilities

The lab had two major publications released in fiscal year 2000. The first was an improved version of the Institute's Technical Report #15, *Industrial Cleaning Survey: Directory of Vendors 4th Ed (ICS: DOV)* focusing on providing users with a comprehensive listing of suppliers of alternative cleaning chemistries, cleaning equipment and recycling equipment. The latest edition was expanded to include TUR Planners and consultants, cleaning standards and specifications, as well as periodicals, publications and conferences related to surface cleaning.

The second publication was the premier issue of the *Journal of Cleaning Science*. The Journal set out to cover a broad spectrum of issues - including cleaning performance, chemical handling and environmental/health considerations - of interest to the research community working in various cleaning applications in parts cleaning, precision cleaning and facility/institutional/ maintenance cleaning. The cooperation of the lab with other Institute programs such as matching grants and student interns remained an integral part of SCL's mission.

Toxics Use Reduction Institute Staff

Fiscal Year 2000

Kenneth Geiser	Director
Michael Ellenbecker	Deputy Director
Claire Bickford	Director Of Administration
Elizabeth Harriman	Senior Associate. Director for Research
Christopher Ford	Research Associate
Heather Tenney	Research Associate
Jack Luskin	Senior Associate Director for Education & Training
Steve Greska	TURP Course Coordinator
Anne Berlin Blackman	Training Associate
Anne Basenese	Program Events Coordinator
Janet Clark	Senior Associate Director for Technical Support
Mary Vidal	Collection & Reference Manager
Ivelisse Alvarado	Information Assistant
Pat Gittes	Outreach Coordinator
Eileen Gunn	TURN Coordinator
Carole Leblanc	Surface Cleaning Lab Coordinator
Jason Marshall	Lab Assistant
Robin Gavin	Secretary, Ed. & Tr. Events Asst.
Malinda Buchannan	Receptionist
Rita Nath	Bookkeeper
Carol Jalbert	Bookkeeper
Aurea Rodriguez	Office Assistant

The Department Of Environmental Protection (DEP)

Fiscal Year 2000 Accomplishments for The Toxics Use Reduction Act

The Department of Environmental Protection (DEP) is responsible for ensuring that firms comply with the Toxics Use Reduction Act (TURA). In the early years of TURA, DEP developed the program infrastructure and directed implementation, including:

- The regulations governing reporting and planning,
- The forms and guidance documents implementing those regulations,
- The TURA information management system
- The certification program for Toxics Use Reduction Planners, and
- A compliance and enforcement program with multi-media focus.

In conjunction with the state's technical assistance and research efforts, TURA enforcement activities have resulted in significant progress in meeting the Act's goals. The discussion that follows highlights DEP's accomplishments in fiscal year 2000 as they relate to the Toxics Use Reduction Act.

Implementation

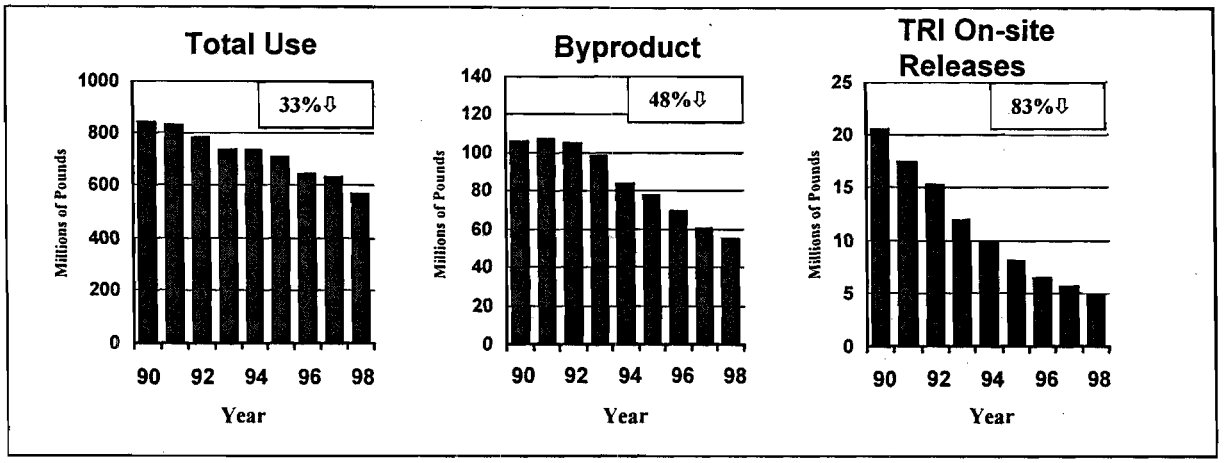
In a cooperative effort with the U.S. Environmental Protection Agency (EPA), DEP conducted its annual outreach to the regulated community. Detailed presentations summarizing the TURA reporting requirements were developed and given at 4 training workshops, which were attended by a total of 200 people.

In 1998, 520 firms filed toxics use reduction reports. In all, 2,229 Form S reports were submitted, along with an equal number of Form R reports and 520 Form S Cover Sheets. Information from these 4,978 documents was entered into the TURA information system. Extensive quality assurance/quality control procedures were conducted and, where necessary, revisions were requested and received from TURA filers. Overall, analysis of the 1998 TURA reports indicates continuing environmental gains resulting from the TURA program. The following charts highlight this progress.

Toxics Use Reduction Progress from 1990 to 1998

When the information is adjusted to account for changes in production, Massachusetts's manufacturers are now using 33% fewer toxic chemicals to make their products; they are generating 48% fewer wastes; and they are releasing 83% fewer toxics to the environment since the first year of TURA reporting.

Figure 1 – Core Group Toxics Use Reduction Progress From 1990 To 1998 – Production Adjusted



The 1999 reporting package was revised and reporting year changes were noted. In addition, the entire Form S reporting package was available for downloading from DEP's Web page (http://www.state.ma.us/dep/bwp/dhm/tura).

Compliance And Enforcement

In FY2000, DEP's Bureau of Waste Prevention conducted approximately 780 multi-media inspections. These inspections were whole-facility inspections that simultaneously check for compliance with applicable environmental rules for air, industrial wastewater, hazardous waste, and toxics use reduction. Because of the multi-media focus, these inspections represent roughly 2,340 single media inspections.

These inspections were also used to identify toxics use reduction and other pollution prevention opportunities, and to promote toxics use reduction as sound management practice, as well as the preferred means of achieving environmental compliance.

As part of the enforcement program, inspections were conducted at 110 large quantity toxic users (TURA filers). As a result of these inspection efforts, 10 facilities were issued enforcement actions for their TURA violations. In Boston, TURA reports and plans were reviewed for accuracy and completeness. As a consequence, 12 facilities were assessed penalties and late fees of approximately $100,000 associated with a variety of media infractions.

DEP also conducted information reviews to assure compliance with DEP regulations. Information based compliance reviews mainly involve checking the centralized files to determine whether reports and plan summaries have been submitted as required. DEP also successfully negotiated a number of Supplemental Environment Projects (SEPs) where the recipient agrees to implement a toxics use reduction project geared toward reducing or eliminating a regulated chemical.

All of these compliance and enforcement efforts are supported by regional staff and have been improved through the involvement of DEP regional coordinators.

DEP includes in its enforcement document language that encourages companies to use toxics use reduction or pollution prevention as the preferred means of compliance. According to OTA, approximately 50% of their visits are the results of DEP referrals.

Toxics Use Reduction Planners

In FY2000, the TUR Planner Program continued its outreach activities by hosting TUR Planner breakfast meetings. At these meetings, members of the TUR Planner Program and the TUR Planners Association coordinated future activities and discussed issues affecting TUR Planners such as DEP policy initiatives, regulatory development, and enforcement procedures. Responding to a request from the planners, TUR Plan Update Guidance was issued before the planning timeline for the first time.

The Department worked extensively with the Toxics Use Reduction Institute (TURI) to maintain the integrity of the TUR Planner recertification program. This includes, but is not limited to, the review of applications for course credit determination, attendance information, records of participation, and continuous improvement coordination.

In FY2000, the TUR Planner Program certified 231 planners. 107 have been certified as General Practice Planners and 124 have been certified as Limited Practice Planners. This number has remained relatively constant over the past several years. The designation of a General Practice Planner allows the individual to certify a TUR Plan for any company in Massachusetts, while the designation of a Limited Practice Planner allows an individual to certify a TUR Plan for his or her employer.

The most recent TUR Planner Examination was given on January 29, 2000. 24 individuals took the exam. From this group, 23 achieved passing scores and 1 failed. The ratio of passing to failing scores has been steady over the past several years.

TURA Information Management

A working group consisting of representatives from DEP, TURI and OTA implemented multiple improvements and modifications to TURA data systems. By reviewing and analyzing specific reports, researchers and technical assistance staff working with DEP have identified many questionable TURA reports. By contacting filers who had potential data submission problems, DEP has been able to obtain corrections and improve data accuracy.

TURA Community Web Site

The Program assisted TURI in the development of the TURA Community web site. Sponsored by TURI, the site uses extracts of the data that DEP receives annually from TURA filers, and allows any citizen to query the TURA database and receive customized reports detailing the use of any

toxic chemical for any community or company in the state. With the advent of this service, citizens can have easy access to TURA information.

TURA Information Release

The Program also developed the 1998 TURA Information Release. Under the leadership of DEP, the group analyzed the data, normalized it for changes in production activity, and corrected any apparent anomalies. The Information Release was made public at Lucent Industries on March 19, 2000. The Release was expanded to include chemical fact sheets, highlighting the top 5 chemicals used in Massachusetts, as well as information regarding the 1999 Governors Award for Toxics Use Reduction.

Toxics Release Inventory Coordination

The TURA/Pollution Prevention Branch serves as the Toxic Release Inventory (TRI) contact point in Massachusetts. In this capacity, the program serves several administrative and technical assistance roles. DEP is the receiving organization for the state copies of the annual TRI reports and is an additional resource to the EPA for firms requesting forms and reporting guidance booklets. DEP assisted the EPA by providing answers to questions on reporting and other issues that involve TRI, TURA, and pollution prevention.

DEP staff maintains ongoing communication with EPA staff in Washington and EPA-New England in order to keep informed of changes in the TRI program that may affect Massachusetts companies. DEP had frequent meetings with EPA and national stakeholders on the proposed expansion of the TRI program, which parallels many of the features of the TURA Program.

Program staff also have been working closely with staff at EPA/New England to analyze the effect of various state toxics programs. At the request of EPA/New England, we have attended numerous workshops on TRI reporting and the TRI expansion to bring toxics use reduction and pollution prevention related issues to the discussion.

Pollution Prevention

Pollution Prevention Training and Education

Over the past year, DEP coordinated with OTA and TURI to provide outreach to the regulated community during FY2000. In the spring of 2000, 200 people attended four training workshops. The training included information on how to correctly complete the TURA Form S reporting package. In addition, DEP participated in the spring 2000 TUR Planner Continuing Education Conference, delivering a detailed explanation of TUR progress in the 1998 Information Release, as well as information regarding PBT reporting.

In addition to seminars and conference presentations, staff also presented an overview of TUR to an engineering class at the Wentworth Institute of Technology in Boston as well as a para-legal course at Anna Maria Ann Junior College in the Worcester area.

DEP also revised and updated its TURA brochure "Business Guide to Toxics Use Reduction" for distribution upon request.

Pollution Prevention Integration Efforts Within DEP

Elements of Toxics Use Reduction and Pollution Prevention are not limited only to the 'core' Toxics Use Reduction Program at DEP. In addition to the core group, DEP has incorporated P2 language in Air Quality's Limited Plan Approval Permits, and in the Industrial Wastewater Environmental Results Program documents.

DEP/TURA staff has also participated in the DEP's Whole Facility Reporting effort, developed regulations to incorporate TURA Redesign recommendations to streamline reporting and planning, and been active participated in EMS workgroup

Pollution Prevention Week

In conjunction with the National Pollution Prevention Roundtable (NPPR), DEP organized Massachusetts Pollution Prevention Week activities with its TURA partners. DEP developed and organized a poster contest that attracted over 400 school children from forty schools throughout Massachusetts. The twelve winning drawings were compiled in a P2 calendar for the year 2000 that were distributed to EOEA, OTA TURI, the NPPR Spring Conference and to every public school in the Commonwealth. P2 Awards and certificates were presented to the winners at the annual Governors award for TUR at the State House

Working with NEWMOA to Promote Pollution Prevention

Throughout the fiscal year, the TURA/P2 branch worked with other Northeast states through the Northeast Waste Management Officials Association (NEWMOA) to promote pollution prevention. The TURA/P2 branch participated in a sub-committee of Northeast states to develop a menu of metrics from which the states can choose appropriate indicators to measure pollution prevention. The menu of metrics will be used by NEWMOA States to provide a uniform basis for reporting and comparison of P2 efforts. Massachusetts DEP signed a Memorandum of Agreement with other Northeast states in support of this effort.

Pollution Prevention Metrics Pilot Program

The Department's BWP Central Regional office has developed a pilot program to track P2 activity in its enforcement actions. Using a tracking worksheet, staff reviewed consent order and interviewed inspectors and permitters, to determine the implementation of P2 opportunities. P2 source reduction techniques taken from the TURA program were used to categorize P2 implementation. Information may be used by the Bureau of Waste Prevention in the future to improve P2 permitting efforts, as well as targeting of future enforcement.

Pollution Prevention Grant

EMS Grant

In the spring of 1998, DEP received a "Pollution Prevention Incentives for States (PPIS) grant" of $100,000 from EPA. The purpose of the grant was to assist small to medium-sized businesses to develop Environmental Management Systems. Five "pilot firms" were recruited by DEP's contractor, the Northeast Business Environmental Network (NBEN) and participated in a mentoring program. The following tasks were completed:

- NBEN sponsored two breakfast meetings whose principle speakers were industry representatives who detailed the benefits of their companies' experience with EMS. Approximately 60 representatives of small to medium sized businesses attended.
- Designed and mailed two brochures describing the grant to over 1000 small to medium facilities.
- Recruited and trained twenty "peers."
- Five facilities have completed "gap analysis," met with peers and program administrators, chose priorities and designed implementation plans.

Toxics Use Reduction Act - DEP Program Related Staffing

TURA Function	21I Section Number	Number of FTE's
Reporting and Planning	3,10,18,19,20	2.1
Data Management and Analysis	3, 13	1.25
Planner Certification and Management	12	.75
Policy and Regulatory Development	3, 9, 10, 14, 17	2.1
Program Integration	1, 8	1.0
Inspections and Enforcement	3, 16, 21	5.0
Program Management	All	1.5
Special Projects	All	1.5
	Total FTE's (includes vacant funded positions)	15.2

Listing of Staff Funded by TURA 2210-0100[1]

1. Walter Hope, Branch Chief-TURA
2. Cynthia Chaves, Regional Planner
3. Lynn Cain (part time), Regional Planner
4. Edward Weatherhead, Regional Planner
5. Steve Edelheit, Administrative Services, Training Unit
6. Maria Lydotes (03), Administrative Assistant-TUR Planner Program
7. Geri Lambert, department-wide enforcement coordinator
8. William McGovern, TURA Information Systems Programmer
9. Martha Caldwell, Regional C&E Inspector
10. Carl Natho, Regional C&E Inspector
11. Anita Baltersen, Regional C&E Inspector
12. Roberta Baker, Regional C&E Inspector
13. Daniel Balboni, Regional C&E Inspector
14. Pan, Mingyuan, Industrial Wastewater Planner
15. Paul Walsh (2260-8870-Chargeback to 2210-0100), Regional Planner
16. Susan Peck (part time), Regional Planner
17. Regional Planner (Vacant/Posted), TURA Enforcement Lead

[1] From November 4, 2000 PCRS Data

TURA Fund Expenditures

The following chart details revenues and expenditures for the Toxics Use Reduction program for the fiscal years 1999 and 2000. The chart also contains estimated revenues and expenditures for fiscal year 2001.

Please note that the operating appropriation for the three agencies has remained relatively constant over the last few years while revenues have declined. The reduction in revenues has occurred as a result of a number of things, including a declining numbers of companies that report to the program and the delisting of reportable substances. Standard state budgetary practices ensure that dedicated funds such as the Toxics Use Reduction Funds are put into balance at the close of each fiscal year, receiving support from the state's General Fund.

Toxic Use Reduction Act Fund Balance Sheet
11-May-01

	FY 99	FY 00	FY 01 (Est.)
Total Revenues	**2,615,000**	**3,866,527**	**3,866,527**
Direct Expenses			
2020-0100 - EOEA	1,809,807	1,839,279	1,838,935
2210-0100 - DEP	1,072,433	945,784	1,032,439
7100-0300 - TURI	1,698,479	1,685,242	1,686,146
7504-0101 - CCC A&F	115,376	115,506	124,438
Total Direct Expenses	**4,696,095**	**4,585,811**	**4,681,958**
Indirect Costs			
Fringe	671,000	710,422	880,273
Other	4,000	4,000	4,000
Total Indirect Costs	**675,000**	**714,422**	**884,273**
Total Expenses	**5,371,095**	**5,300,233**	**5,566,231**
Ending Balance	**(2,756,095)**	**(1,433,706)**	**(1,699,704)**